Abstract

There are important changes in neural structure and function during middle childhood, when adrenarche, the earliest component of puberty, begins (between 6 and 8 years). However, how rising dehydroepiandrosterone (DHEA) levels, the hormonal signature of adrenarche, impact neurodevelopment at this stage is critically underexplored. Measures of circuit-level reward function, like the Reward Positivity to monetary wins/losses and P300 following social acceptance/rejection, both event related potentials (ERPs) derived from electroencephalograph data, may be useful targets for exploring the relationship between DHEA and neurodevelopment - DHEA is known to modulate catecholamine function and reward ERPs show changes in latency and amplitude at these ages. To investigate these hypotheses, the proposed study will assay basal DHEA in 7- and 8-year-old children (N=200) using hair samples. Because adrenarche begins earlier in populations with greater stress exposure and risk for psychopathology, children from minority race and lower SES backgrounds will be oversampled. Children will complete an electroencephalogram (EEG) to assess neural responsivity to monetary gains/losses and social acceptance/rejection. Caregivers will report on children's symptoms of psychopathology, along with SES, race, BMI, and external puberty, to probe factors associated with adrenarche. This rich dataset will provide critical descriptive data for hair DHEA levels in 7- and 8-year-olds by sex, race/ethnicity, and reported external puberty, and address theoretical questions about the relationships between adrenarche and neurodevelopmental circuitry involved in the function of reward, which is implicated in multiple health outcomes including psychopathology.